

- 1) An in vivo assay system for determining the effect of a pharmaceutically acceptable compound on angiogenesis comprising:
 - a. a composition of human endothelial cells; and
 - b. a non-human, immuno-compromised host,wherein said cells have a recombinant expression cassette encoding telomerase.
2. The in vivo assay system of claim 1 further comprising a digital imaging device.
3. The in vivo assay system of claim 2 wherein said device detects fluorescence.
4. The in vivo assay system of claim 1 wherein said cells stably express a transformed genetic marker.
5. The in vivo assay system of claim 4 wherein said transformed genetic marker is enhanced green fluorescent protein (eGFP).
6. cancel
7. The in vivo assay system of claim 1 wherein said telomerase is a human telomerase reverse transcriptase catalytic subunit.
8. The in vivo assay system of claim 1 wherein said host is a SCID mouse.
9. The in vivo assay system of claim 1 wherein said compound is selected from the group consisting of growth factors, extracellular matrix molecules, proteinase inhibitors, cell adhesion molecules, angiostatic factors, apoptotic inducers, and inflammatory mediators.
10. The in vivo assay system of claim 9 wherein said compound is a growth factor.
11. The in vivo assay system of claim 10 wherein said growth factor is selected from the group consisting of angiopoietins, CTGF, EGF, FGF-2, IGF, PLGF, PDGF, SF, TGF, and VEGF.
12. The in vivo assay system of claim 11 wherein said growth factor is VEGF.
13. The in vivo assay system of claim 11 wherein said growth factor is FGF-2.
14. The in vivo assay system of claim 1 wherein said compound is capable of modulating tumor angiogenesis.
15. (For Discussion) An in vivo method for analyzing the effect of a pharmaceutically acceptable compound on **angiogenesis** comprising:
 - a. providing a composition comprising human endothelial cells, wherein said

cells have a recombinant expression cassette encoding telomerase and a stably transformed genetic marker;

- b. adding a compound ~~that modulates the formation of functional microvessels to said cells to form~~ to said composition;
- c. implanting said composition in a non-human, immuno-compromised host; and
- d. determining the amount of **angiogenesis** in the implanetd cells by measuring the expression of said genetic marker.

16. cancel

17. The in vivo method of claim 15 wherein said telomerase is a human telomerase reverse transcriptase catalytic subunit.

18. The in vivo method of claim 15 wherein said transformed genetic marker is enhanced green fluorescent protein (eGFP).

19. The in vivo method of claim 15 wherein expression of said transformed genetic marker is detected by a digital imaging device.

20. The in vivo method of claim 15 wherein said compound is selected from the group consisting of growth factors, extracellular matrix molecules, proteinase inhibitors, cell adhesion molecules, angiostatic factors, apoptotic inducers, and inflammatory mediators.

21. The in vivo method of claim 20 wherein said compound is a growth factor.

22. The in vivo method of claim 21 wherein said compound is VEGF.

23. The in vivo method of claim 21 wherein said compound is FGF-2.

24. The in vivo method of claim 15 wherein said composition further comprises matrigel.

25. The in vivo method of claim 15 wherein said host is a SCID mouse.

26. (Previously Presented) The in vivo method of claim 15 wherein said compound is capable of modulating tumor angiogenesis.

27. A non-human, immuno-compromised host comprising at least one capillary, venule or arteriole formed from a composition of human endothelial cells having a recombinant expression cassette encoding telomerase, and a stably transformed genetic marker in said host, wherein blood of said host is transmitted through said at least one capillary, venule or arteriole.

28. The in vivo method of claim 27 wherein said host is a SCID mouse.

29. The in vivo method of claim 27 wherein said telomerase is a human telomerase reverse transcriptase catalytic subunit.

30. The in vivo method of claim 27 wherein said stably transformed genetic marker is enhanced green fluorescent protein (eGFP).